

Trend Study 11B-14-00

Study site name: Prickly Pear .

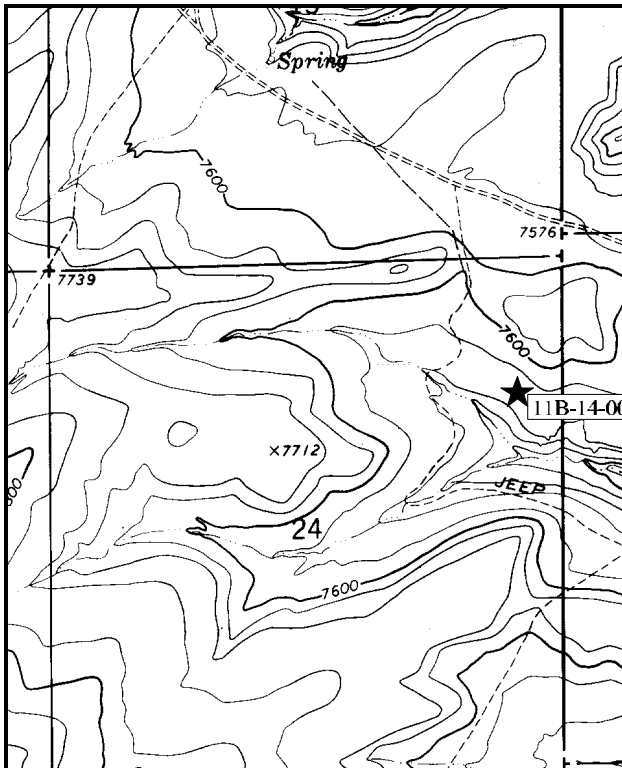
Range type: Chained, Seeded P-J .

Compass bearing: frequency baseline 96°M.

Footmark (first frame placement) 5 feet, footmarks (frequency belts) line 1 (11ft), line 2 (34ft), line 3 (59ft), line 4 (71ft), line 5 (95ft). No Rebar on belts.

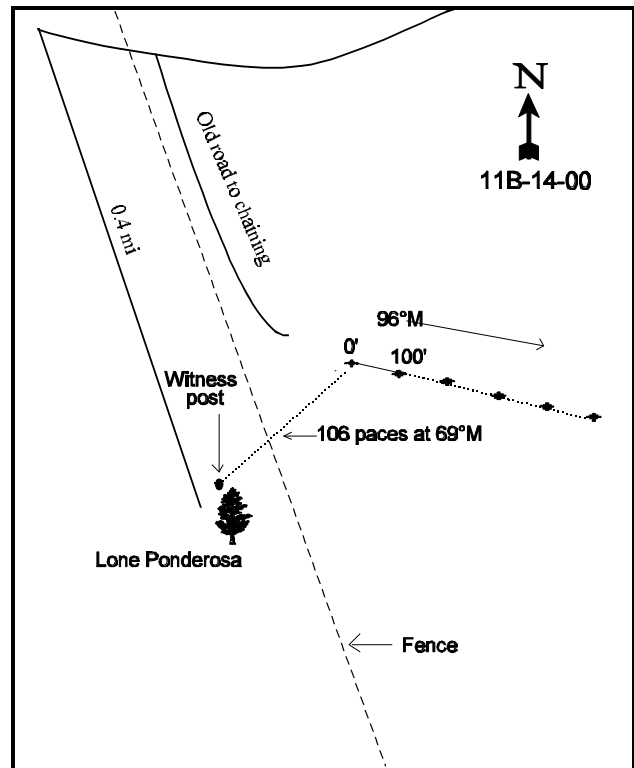
LOCATION DESCRIPTION

In Wellington at the intersection of Highway 6 and Nine Mile Canyon Road drive 42 miles northeast down Nine Mile Canyon to the Prickly Pear turnoff. Turn right (south) and travel up Prickly Pear Canyon 7.5 miles to a fork just beyond a fence. Turn south (left) and travel 0.4 miles to a large Ponderosa pine tree on the east side of the road. A witness post is just north of the tree. From the witness post walk 106 paces at 69°M crossing the fence to the 0 foot base line post. The base line runs at an azimuth of 96°M.



Map Name: Curren Canyon

Township 12S , Range 14E , Section 24



Diagrammatic Sketch

UTM. 4401517.367 N, 560898.939 E

DISCUSSION

Trend Study No. 11B-14 (32-20)

The Prickly Pear study was established in 1994, and is located at the head of Prickly Pear Canyon at 7,540 feet in elevation on a southwest aspect. The transect is near the edge on a slightly sloping flat narrow ridge that runs west to east into Nine-Mile Canyon. It was not selected necessarily because of current elk use, but for the anticipated increase in elk use in the coming years. The importance of the site to elk is evidenced by a pellet group frequency in 1994 of 21% compared to only 8% for deer. Pellet group frequency was much lower in 2000, perhaps due to the mild winter of 1999-2000. A pellet group transect taken along the study site baseline in 2000 estimates 22 elk, 9 cow and 8 horse days use/acre (54 edu/ha, 23 cdu/ha and 20 hdu/ha). No deer pellet groups were encountered. The area was chained and seeded in the mid-1970's and is currently grazed by livestock as part of the Stone Cabin allotment which is grazed on a deferred rotation schedule from May through September. Herbaceous production is poor and grasses on the site were heavily utilized by livestock in 2000.

The soil is moderately deep and rocky with an estimated effective rooting depth of just over 14 inches. It has a clay loam texture with slightly alkaline pH of 7.6. Phosphorus is limited at just 2 ppm, as values less than 10 ppm have been shown to limit normal plant growth and development. Small shale fragments and larger flat pieces of sandstone are common on the surface and throughout the soil profile. Combined rock and pavement produced 22% cover in 1994 and 30% cover in 2000. Percent cover of bare ground is high and litter cover is low, with most litter coming from pinyon and juniper debris from the chaining. Some erosion is taking place but it is minimized by the slight slope combined with the armored nature of the soil surface.

Browse is very limited on this site with browse cover values of only 3% in 1994 and 5% in 2000. Total vegetative cover is not very high at only 12% to 13%. Similar sites have on average more than twice the vegetative cover as the Prickly Pear site. The herbaceous understory is also limited with a cover value of only about 9%. Site potential appears to be low when compared to other comparable sites within the Range Creek unit. Key browse on this site consist of small numbers of true mountain mahogany and rubber rabbitbrush. Mahogany is estimated at 220 plants/acre in 2000 with over half of the population showing moderate to heavy use on both readings. Even with moderate to heavy use, vigor is good. No seed was produced in 2000 likely due to the extremely dry conditions. Rubber rabbitbrush also has a relatively small population (480 plants/acre in 1994 and 320 in 2000). They were heavily utilized in 1994. However, current ('00) use is mostly light to moderate. The most common shrub on the site is corymbid erigonum with a density of around 2,000 plants/acre. These shrubs show little use.

Released pinyon and juniper trees are growing back within the chaining. Point-center quarter data from 2000 estimate 92 pinyon and 31 juniper trees/acre. Most trees are small with an average basal diameter estimated at 3.3 inches for pinyon and 3.6 inches for juniper. Five percent of the juniper trees sampled were mature chained trees that are still alive.

The herbaceous understory is poor, producing only 9% cover. The only fairly common grasses include Salina wildrye and crested wheatgrass which produce over 80% of the meager grass cover. Forbs are diverse but the only common species are indicative of shallow soil. The most common species include: stemless goldenweed, fineleaf hymenopappus, bladderpod, gumweed aster and desert phlox. There is little useful forage produced by these forbs.

1994 APPARENT TREND ASSESSMENT

Soil trend appears to be in stable, but poor condition, with a high percentage of bare ground and rock, and a low cover value for litter. The browse component is poor with very low densities and poor vigor. The herbaceous

understory has one of the lowest cover values for this kind of site, but it still has a fair amount of grass production from Salina wildrye and crested wheatgrass. Because of the low abundance for both crested wheatgrass and smooth brome, both seeded when this woodland was chained, this low density could mostly be explained because of the prolonged drought we have had in the past 8 years.

2000 TREND ASSESSMENT

Trend for soil is stable, but remains in poor condition. Relative cover values for vegetation, litter, and bare ground are similar to 1994 estimates. There is some erosion occurring but it is minimized by the gentle terrain combined with the armored nature of the soil surface. Trend for browse is also stable. Density of desirable browse species, mountain mahogany and rabbitbrush, are low yet stable. Vigor is generally good and percent decadence low. Density of other less desirable shrubs on the site also appear to be stable. The only negative aspect of the browse trend is the number of pinyon and juniper trees released on the chaining. They are not currently abundant and do not produce much cover, but they will eventually regain dominance of the site, especially without a vigorous herbaceous understory. Trend for the herbaceous understory is down slightly due to a decline in the sum of nested frequency of both grasses and forbs.

TREND ASSESSMENT

soil - stable, but poor condition (3)

browse - stable (3)

herbaceous understory - declining slightly with continued drought (2)

HERBACEOUS TRENDS --

Herd unit 11B, Study no: 14

Type	Species	Nested Frequency		Quadrat Frequency		Average Cover %	
		'94	'00	'94	'00	'94	'00
G	Agropyron cristatum	69	62	23	24	1.30	1.31
G	Agropyron spicatum	-	*9	-	3	-	.33
G	Bromus inermis	5	*-	3	-	.01	-
G	Carex spp.	13	11	7	4	.25	.45
G	Elymus salina	128	118	43	40	3.40	2.82
G	Oryzopsis hymenoides	2	2	1	2	.00	.03
G	Stipa comata	7	-	2	-	.01	-
G	Stipa lettermani	3	-	1	-	.03	-
Total for Annual Grasses		0	0	0	0	0	0
Total for Perennial Grasses		227	202	80	73	5.03	4.96
Total for Grasses		227	202	80	73	5.03	4.96
F	Antennaria rosea	-	5	-	2	-	.01
F	Arenaria fendleri	3	-	2	-	.03	-
F	Castilleja spp.	2	-	1	-	.00	-
F	Draba spp. (a)	-	3	-	1	-	.00
F	Euphorbia spp.	10	*-	4	-	.02	-
F	Haplopappus acaulis	27	*50	13	25	.50	1.36
F	Helianthella uniflora	20	15	8	6	.12	.08
F	Hymenoxys acaulis	56	*15	19	6	.24	.10
F	Hymenopappus filifolius	54	30	21	14	1.20	.32
F	Lesquerella spp.	135	*37	51	16	.45	.13
F	Machaeranthera canescens	14	*-	6	-	.03	-
F	Machaeranthera grindelioides	53	68	22	30	.28	.74
F	Penstemon spp.	-	13	-	7	-	.04
F	Penstemon spp.	8	-	5	-	.05	-
F	Penstemon palmeri	5	-	2	-	.01	-
F	Phlox hoodii	150	123	65	58	.80	1.13
F	Physaria spp.	2	*14	1	7	.00	.03
F	Townsendia incana	13	12	6	6	.05	.05
F	Unknown forb-perennial	37	*-	13	-	.16	-
Total for Annual Forbs		0	3	0	1	0	0.00
Total for Perennial Forbs		589	382	239	177	3.99	4.02
Total for Forbs		589	385	239	178	3.99	4.02

* Indicates significant difference at % = 0.10 (annuals excluded)

BROWSE TRENDS --

Herd unit 11B, Study no: 14

Type	Species	Strip Frequency		Average Cover %	
		'94	'00	'94	'00
B	Cercocarpus montanus	8	7	.69	1.50
B	Chrysothamnus nauseosus	13	10	.28	.15
B	Chrysothamnus viscidiflorus	2	3	.00	-
B	Ephedra viridis	3	1	-	-
B	Eriogonum corymbosum	37	45	.85	1.22
B	Gutierrezia sarothrae	15	12	.10	.08
B	Juniperus osteosperma	0	1	-	.03
B	Pinus edulis	0	4	1.26	1.52
Total for Browse		78	83	3.21	4.50

CANOPY COVER --

Herd unit 11B, Study no: 14

Species	Percent Cover
	'00
Pinus edulis	.80

BASIC COVER --

Herd unit 11B, Study no: 14

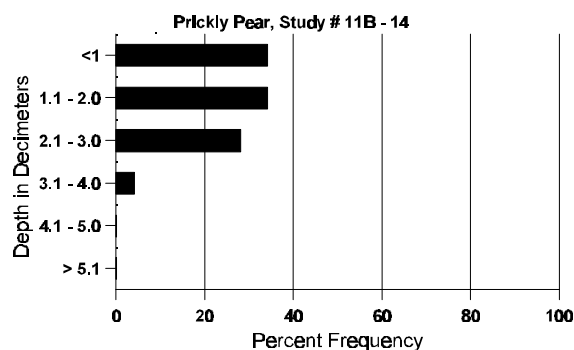
Cover Type	Nested Frequency		Average Cover %	
	'94	'00	'94	'00
Vegetation	360	310	12.62	13.89
Rock	388	226	15.38	13.51
Pavement	432	399	6.16	16.37
Litter	456	357	19.67	23.13
Cryptogams	2	7	.00	.06
Bare Ground	443	420	34.38	42.35

SOIL ANALYSIS DATA --

Herd Unit 11B, Study # 14, Study Name: Prickly Pear

Effective rooting depth (inches)	Temp °F (depth)	pH	%sand	%silt	%clay	%OM	PPM P	PPM K	dS/m
14.20	64.6 (16.30)	7.6	31.6	36.8	31.6	3.5	2.0	201.6	0.6

Stoniness Index



PELLET GROUP FREQUENCY --

Herd unit 11B, Study no: 14

Type	Quadrat Frequency		Pellet Transect	
			Pellet Groups per Acre	Days Use per Acre (ha)
	'94	'00	'00	'00
Rabbit	10	8	531	N/A
Horse	-	2	96	N/A
Elk	21	7	287	23 (57)
Cow	-	-	113	10 (25)
Deer	8	1	-	-

BROWSE CHARACTERISTICS --

Herd unit 11B, Study no: 14

A Y G R E	Form Class (No. of Plants)									Vigor Class				Plants Per Acre	Average (inches)		Total	
		1	2	3	4	5	6	7	8	9	1	2	3		4	Ht.		Cr.
		Amelanchier utahensis																
M	94	-	-	-	-	-	-	-	-	-	-	-	-	-	0	45	61	0
	00	-	-	-	-	-	-	-	-	-	-	-	-	-	0	-	-	0
% Plants Showing		<u>Moderate Use</u>				<u>Heavy Use</u>				<u>Poor Vigor</u>				<u>%Change</u>				
'94		00%				00%				00%								
'00		00%				00%				00%								
Total Plants/Acre (excluding Dead & Seedlings)												'94	0	Dec:	-			
												'00	0		-			

A Y G R E	Form Class (No. of Plants)	Vigor Class				Plants Per Acre	Average (inches)		Total					
		1	2	3	4		Ht.	Cr.						
Cercocarpus montanus														
S	94	-	-	-	-	-	-	-	-	-	-	0		0
	00	5	-	-	-	-	-	-	-	-	-	100		5
M	94	3	4	2	-	-	-	-	-	-	-	180	29	36
	00	5	-	2	-	2	2	-	-	-	-	220	32	47
X	94	-	-	-	-	-	-	-	-	-	-	20		1
	00	-	-	-	-	-	-	-	-	-	-	0		0
% Plants Showing		<u>Moderate Use</u>		<u>Heavy Use</u>		<u>Poor Vigor</u>		<u>%Change</u>						
'94		44%		22%		00%		+18%						
'00		18%		36%		00%								
Total Plants/Acre (excluding Dead & Seedlings)											'94	180	Dec:	-
											'00	220		-
Chrysothamnus nauseosus														
Y	94	-	1	-	-	-	-	-	-	-	-	20		1
	00	-	1	-	-	-	-	-	-	-	-	20		1
M	94	16	-	2	-	-	-	-	-	-	-	360	22	24
	00	12	-	-	-	-	-	-	-	-	-	240	20	23
D	94	2	-	3	-	-	-	-	-	-	-	100		5
	00	2	1	-	-	-	-	-	-	-	-	60		3
X	94	-	-	-	-	-	-	-	-	-	-	20		1
	00	-	-	-	-	-	-	-	-	-	-	40		2
% Plants Showing		<u>Moderate Use</u>		<u>Heavy Use</u>		<u>Poor Vigor</u>		<u>%Change</u>						
'94		04%		21%		17%		-33%						
'00		13%		00%		06%								
Total Plants/Acre (excluding Dead & Seedlings)											'94	480	Dec:	21%
											'00	320		19%
Chrysothamnus viscidiflorus														
M	94	2	-	-	-	-	-	-	-	-	-	40	5	8
	00	2	-	-	-	-	-	-	-	-	-	40	4	7
D	94	-	-	-	-	-	-	-	-	-	-	0		0
	00	1	-	-	-	-	-	-	-	-	-	20		1
% Plants Showing		<u>Moderate Use</u>		<u>Heavy Use</u>		<u>Poor Vigor</u>		<u>%Change</u>						
'94		00%		00%		00%		+33%						
'00		00%		00%		33%								
Total Plants/Acre (excluding Dead & Seedlings)											'94	40	Dec:	0%
											'00	60		33%

A G R E	Y R	Form Class (No. of Plants)									Vigor Class				Plants Per Acre	Average (inches)		Total
		1	2	3	4	5	6	7	8	9	1	2	3	4		Ht.	Cr.	
Ephedra viridis																		
Y	94	1	-	-	-	-	-	-	-	-	1	-	-	-	20		1	
	00	-	-	-	-	-	-	-	-	-	-	-	-	-	0		0	
M	94	1	-	-	-	-	-	-	-	-	1	-	-	-	20	16	19	
	00	-	-	1	-	-	-	-	-	-	1	-	-	-	20	16	10	
D	94	-	1	-	-	-	-	-	-	-	1	-	-	-	20		1	
	00	-	-	-	-	-	-	-	-	-	-	-	-	-	0		0	
% Plants Showing		<u>Moderate Use</u>			<u>Heavy Use</u>			<u>Poor Vigor</u>			<u>%Change</u>							
'94		33%			00%			00%			-67%							
'00		00%			100%			00%										
Total Plants/Acre (excluding Dead & Seedlings)														'94	60	Dec:	33%	
														'00	20		0%	
Eriogonum corymbosum																		
S	94	2	-	-	-	-	-	-	-	-	2	-	-	-	40		2	
	00	9	-	-	-	-	-	-	-	-	9	-	-	-	180		9	
Y	94	29	4	-	-	-	-	-	-	-	33	-	-	-	660		33	
	00	28	1	-	-	-	-	-	-	-	29	-	-	-	580		29	
M	94	52	7	-	-	1	-	-	-	-	60	-	-	-	1200	11	16	
	00	56	3	-	-	-	-	2	-	-	60	-	1	-	1220	9	13	
D	94	1	-	-	-	-	-	-	-	-	1	-	-	-	20		1	
	00	17	-	-	2	-	-	-	-	-	10	5	-	4	380		19	
X	94	-	-	-	-	-	-	-	-	-	-	-	-	-	0		0	
	00	-	-	-	-	-	-	-	-	-	-	-	-	-	20		1	
% Plants Showing		<u>Moderate Use</u>			<u>Heavy Use</u>			<u>Poor Vigor</u>			<u>%Change</u>							
'94		13%			00%			00%			+14%							
'00		04%			00%			05%										
Total Plants/Acre (excluding Dead & Seedlings)														'94	1880	Dec:	1%	
														'00	2180		17%	
Gutierrezia sarothrae																		
Y	94	6	-	-	-	-	-	-	-	-	6	-	-	-	120		6	
	00	-	-	-	-	-	-	-	-	-	-	-	-	-	0		0	
M	94	30	-	-	-	-	-	-	-	-	30	-	-	-	600	5	6	
	00	24	-	-	-	-	-	-	-	-	24	-	-	-	480	4	6	
D	94	2	-	-	-	-	-	-	-	-	1	-	-	1	40		2	
	00	-	-	-	-	-	-	-	-	-	-	-	-	-	0		0	
X	94	-	-	-	-	-	-	-	-	-	-	-	-	-	60		3	
	00	-	-	-	-	-	-	-	-	-	-	-	-	-	0		0	
% Plants Showing		<u>Moderate Use</u>			<u>Heavy Use</u>			<u>Poor Vigor</u>			<u>%Change</u>							
'94		00%			00%			03%			-37%							
'00		00%			00%			00%										
Total Plants/Acre (excluding Dead & Seedlings)														'94	760	Dec:	5%	
														'00	480		0%	

A G E	Y R	Form Class (No. of Plants)									Vigor Class				Plants Per Acre	Average (inches) Ht. Cr.	Total
		1	2	3	4	5	6	7	8	9	1	2	3	4			
Juniperus osteosperma																	
S	94	-	-	-	-	-	-	-	-	-	-	-	-	-	0		0
	00	1	-	-	-	-	-	-	-	-	-	1	-	-	20		1
Y	94	-	-	-	-	-	-	-	-	-	-	-	-	-	0		0
	00	-	-	-	-	-	-	1	-	-	-	1	-	-	20		1
% Plants Showing		<u>Moderate Use</u>			<u>Heavy Use</u>			<u>Poor Vigor</u>			<u>%Change</u>						
'94		00%			00%			00%									
'00		00%			00%			00%									
Total Plants/Acre (excluding Dead & Seedlings)														'94	0	Dec:	-
														'00	20		-
Pinus edulis																	
S	94	-	-	-	-	-	-	-	-	-	-	-	-	-	0		0
	00	3	-	-	-	-	-	-	-	-	-	3	-	-	60		3
Y	94	-	-	-	-	-	-	-	-	-	-	-	-	-	0		0
	00	3	-	-	-	-	-	-	-	-	-	3	-	-	60		3
M	94	-	-	-	-	-	-	-	-	-	-	-	-	-	0	-	0
	00	1	-	-	-	-	-	-	-	-	-	1	-	-	20	-	1
% Plants Showing		<u>Moderate Use</u>			<u>Heavy Use</u>			<u>Poor Vigor</u>			<u>%Change</u>						
'94		00%			00%			00%									
'00		00%			00%			00%									
Total Plants/Acre (excluding Dead & Seedlings)														'94	0	Dec:	-
														'00	80		-